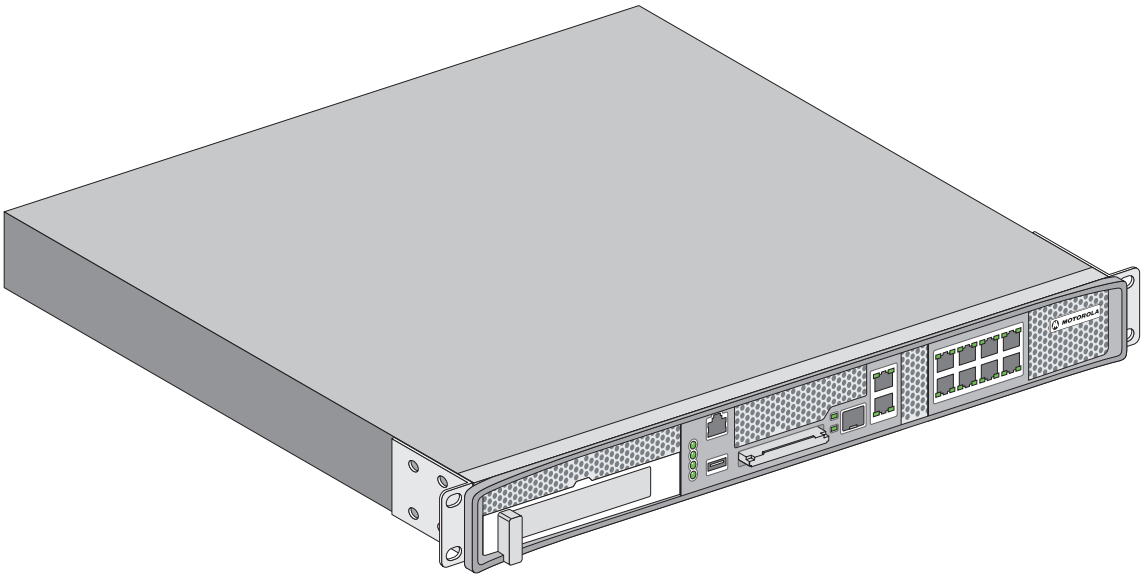
RFS6000 Series RF Switch

Installation Guide



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1 Introduction

The Motorola RFS6000 Series RF Switch is a high-performance member of Motorola's Wireless Switch family. The RFS6000 Series RF Switch provides centralized Wireless LAN (WLAN) configuration and management by coalescing a network "intelligence" previously spread across physically distributed access points. By replacing access points with simpler access ports (or "thin" access points), the RFS6000 Series RF Switch becomes a WLAN's single point of contact, thus reducing wireless networking complexity by moving management out of the ceiling and into the wiring closet. In addition, through the use of patented Virtual AP architecture, the RFS6000 Series RF Switch lets you create multiple WLANs without changing or adding to the existing wired network infrastructure.

This document is written for the network device installer.

1.1 Package Contents

Inspect the package contents and report any missing or damaged items to your sales representative. The package should contain the following:

- RFS6010 RF Switch with Rack Brackets installed
- Console Cable
- *Installation Guide* (this document)
- China RoHS compliance document

1.2 Document Conventions

The following graphical alerts are used in this document to indicate notable situations:

NOTE Tips, hints, or special requirements that you should take note of.

CAUTION Care is required. Disregarding a caution can result in data loss or equipment malfunction.

WARNING! Indicates a condition or procedure that could result in personal injury or equipment damage.

1.3 Warnings

- Read all installation instructions and site survey reports, and verify correct equipment installation before connecting the system to its power source.
- Remove jewelry and watches before installing this equipment.
- Install the equipment in a rack with adequate dimensions and weight allowances.
- Verify the rack is anchored and cannot tip over or break away from its mountings.
- Verify the unit is grounded before connecting it to the power source.
- Verify any device connected to this unit is properly wired and grounded.
- Connect all power cords to a properly wired and grounded electrical circuit.
- Verify the electrical circuits have appropriate overload protection.
- Attach only approved power cords to the device.
- Motorola strongly recommends the use of an Uninterruptible Power Supply (UPS) that supports the RFS6000 Series RF Switch power rating. Not using a UPS can result in data loss or equipment damage due to a power surge or power failure.
- Verify that the power connector and socket are accessible at all times during the operation of the equipment.
- Do not work with power circuits in dimly lit spaces.
- Do not install this equipment or work with its power circuits during thunderstorms or other weather conditions that could cause a power surge.
- Verify there is adequate ventilation around the device, and ambient temperatures meet equipment operation specifications.

1.4 Site Preparation

- Consult your site survey and network analysis reports to determine specific equipment placement, port capacity, power drops, and so on.
- Assign installation responsibility to the appropriate personnel.
- Identify where all installed components are located.
- Verify appropriate rack mounting requirements.
- Provide a sufficient number of power drops for your equipment.
- Ensure adequate, dust-free ventilation to all installed equipment.
- Identify and prepare Ethernet and console port connections.
- Verify that cable lengths are within the maximum allowable distances for optimal signal transmission.
- Verify that the RFS6000 Series RF Switch is powered through an Uninterruptible Power Supply (UPS).

2 Specifications

2.1 Physical Specifications

Width	440mm (17.32 in)
Height	44.45mm (1.75 in)
Depth	390.8mm (15.38 in)
Weight	6.35 Kg (14.0 lbs)
Operating Temperature	0°C - 40°C
Operating Humidity	5% - 85% RH, non-condensing
Operating Altitude	3 km (10000 ft)

2.2 Power Cord Specifications

A power cord is not supplied with the switch. Use only a correctly rated power cord certified (as appropriate) for the country of operation.

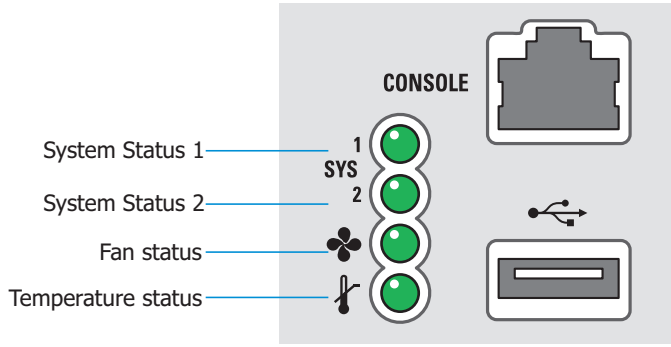
2.2.1 Power Protection

- **If possible, use a circuit dedicated to data processing equipment.** Commercial electrical contractors are familiar with wiring for data processing equipment and can help with the load balancing of these circuits.
- **Install surge protection.** Be sure to use a surge protection device between the electricity source and the RFS6000 Series RF Switch.
- **Install an Uninterruptible Power Supply (UPS)**. A UPS provides continuous power during a power outage. Some UPS devices have integral surge protection. UPS equipment requires periodic maintenance to ensure reliability. A UPS of the proper capacity for the data processing equipment must be purchased.

3 LED Codes

The RFS6010 RF Switch has four vertically-stacked LEDs on its front panel. Each of the switch's Gigabit Ethernet ports have two status LEDs. These LEDs display two colors (green & amber), and three lit states (solid, blinking, and off). The following tables decode the combinations of LED colors and states for the System Status LEDs and the Gigabit Ethernet LEDs.

3.1 System Status LEDs



3.1.1 Start Up / POST (Primary System or Redundant System)

System Status 1 LED	System Status 2 LED	Event
Off	Off	Power off
Green Blinking	Green Blinking	Power On Self Test (POST) running
Green Solid	Green Blinking	POST succeeded (Operating System Loading)
Green Solid	Off	POST succeeded (Normal Operation)
Amber Blinking	Off	POST Failure
Alternating Green Blinking & Amber Blinking	Alternating Green Blinking & Amber Blinking	Boot Up Error: Device has an invalid checksum

NOTE During switch start up, the Temperature status LED will be lit Solid Amber. This is normal behavior and does not indicate an error. At the completion of start up the Temperature Status LED will switch to Solid Green.

3.1.2 Switch Status (Primary System)

System Status 1 LED	System Status 2 LED	Event
Off	Off	Power off
Green Solid	Off	No Redundancy Feature Enabled
Green Solid	Green Solid	Redundancy Feature Enabled Actively Adopting Access Ports
Green Solid	Amber Blinking	No License to adopt Access Ports or No Country Code configured on the switch or License and Country Code configured, but no APs adopted

3.1.3 Switch Status (Redundant System)

System Status 1 LED	System Status 2 LED	Event
Off	Off	Power off
Green Solid	Off	No Redundancy Feature Enabled

System Status 1 LED	System Status 2 LED	Event
Green Blinking	Green Solid	Redundant System failed over and adopting ports
Green Blinking	Alternating Green Blinking & Amber Blinking	Redundant System not failed over.
Green Solid	Amber Blinking	No License to adopt Access Ports or No Country Code configured on the switch or License and Country Code configured, but no APs adopted

3.1.4 Fan LED

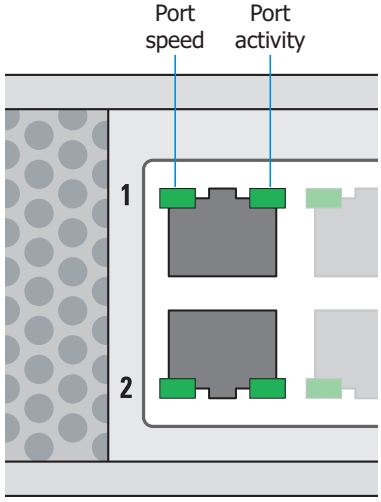
Fan LED	Event
Off	System Off / POST Start
Green Blinking	POST in Process
Green Solid	All System Fans Normal Operation
Amber Solid	Redundant Cooling Failure System Operational
Amber Blinking	System Cooling Failure *System will be held in reset until the issue is resolved*

3.1.5 Temperature Status LED

Temperature LED	Event
Off	System Off
Green Solid	Ambient Inlet Temperature is within specified operating limit
Amber Solid	Ambient Inlet Temperature is near the maximum operating temperature During switch start up this LED will be lit Solid Amber. This is normal behavior and does not indicate an error.

Temperature LED	Event
Amber Blinking	Ambient Inlet Temperature is above the maximum specified operating temperature *System will be held in reset until the issue is resolved*

3.2 RJ-45 Gigabit Ethernet LEDs



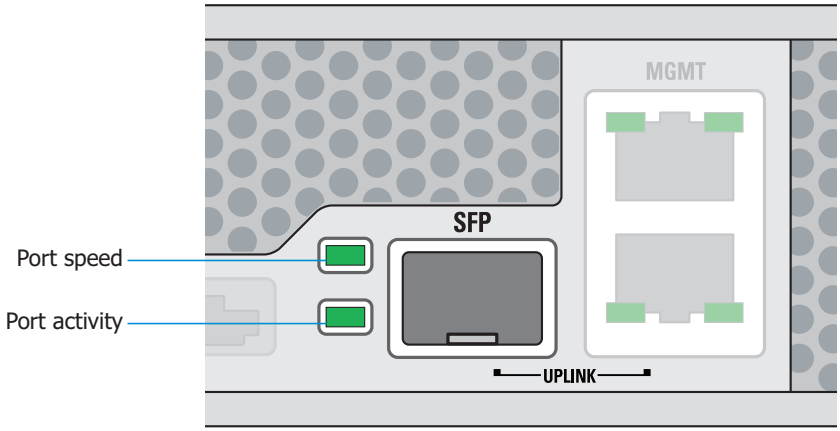
3.2.1 RJ-45 Port Speed LED

Port Speed LED	Event
Off	10 Mbps
Green Solid	100 Mbps
Amber Solid	1000 Mbps

3.2.2 RJ-45 Port Status LED

Port Status LED	Event
Off	No Link or Administratively shut down
Green Solid	Link present
Green Blinking	Activity: Transmit and Receive

3.3 SFP Gigabit Ethernet LEDs



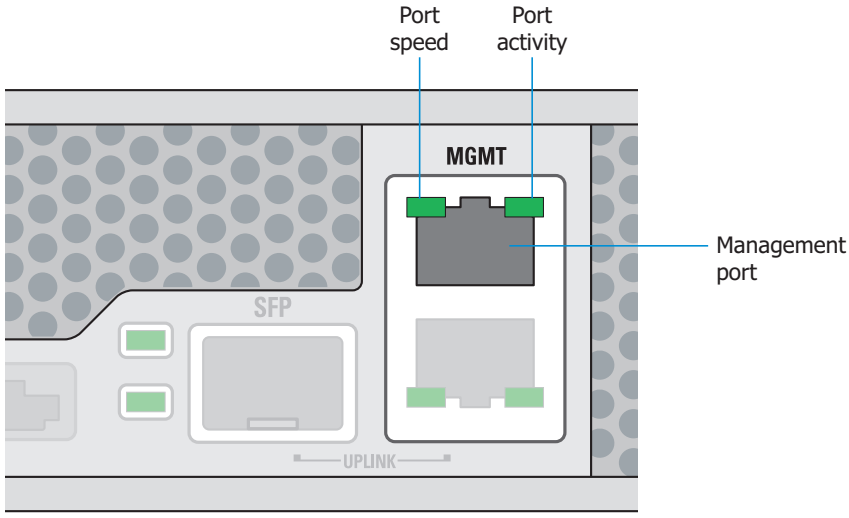
3.3.1 SFP Port Speed LED

Port Speed LED	Event
Amber Solid	1000 Mbps

3.3.2 SFP Port Status LED

Port Status LED	Event
Off	No Link or Administratively shut down
Green Blinking	Link present / Operational

3.4 Management Port LEDs



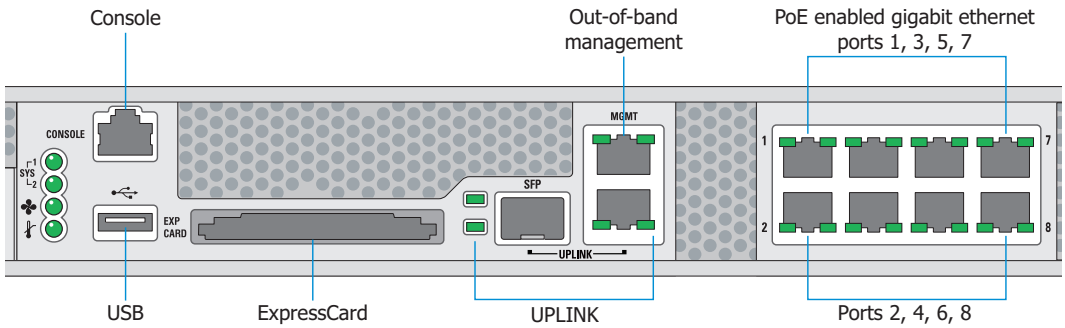
3.4.1 Out of Band Management Port Speed LED

Port Speed LED	Event
Off	10 Mbps
Green Solid	100 Mbps

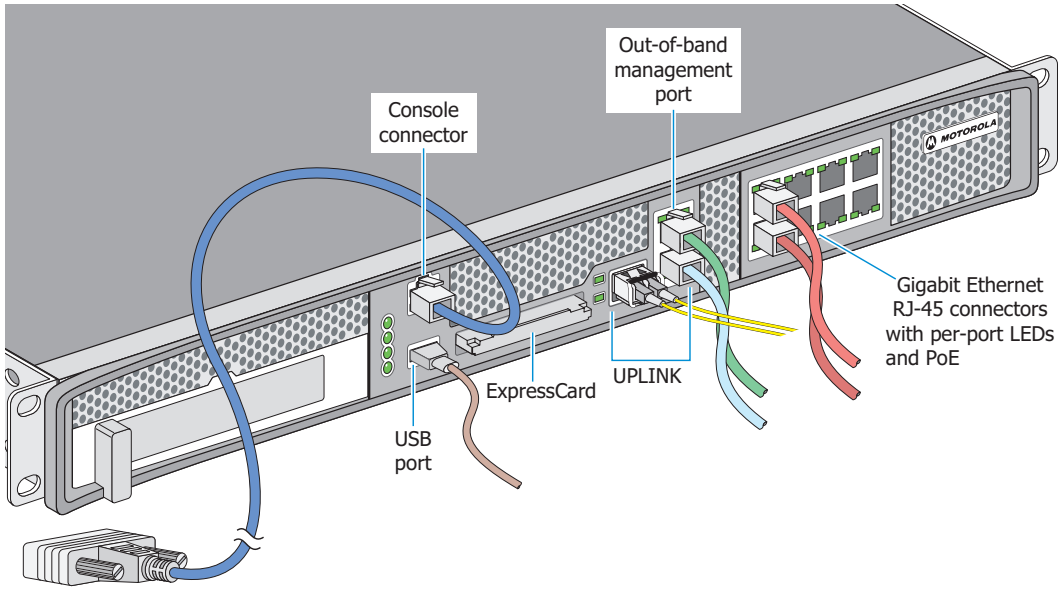
3.5 Out of Band Management Port Status LED

Port Status LED	Event
Off	No Link
Green Solid	Link present
Green Blinking	Activity: Transmit and Receive

4 Hardware Setup



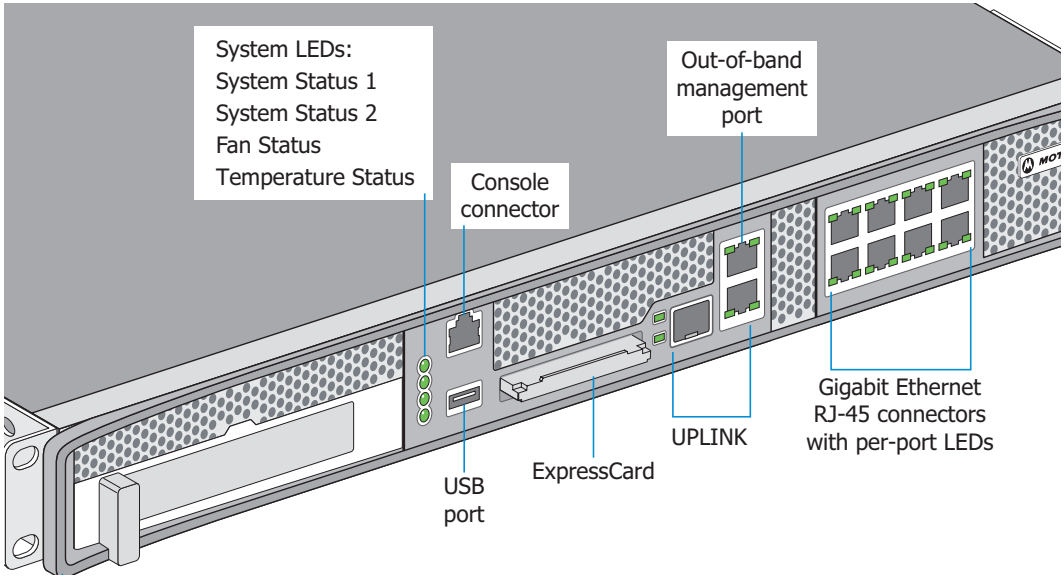
4.1 Cabling Information



The RFS6010 RF Switch has nine RJ-45 Gigabit Ethernet ports, one Gigabit SFP (fiber) port, one Out-of-band management port and one Console connector. The above diagram shows each of those ports and the cables or devices attached to them. The sections that follow describe detailed connection and cabling information for each port. The switch also includes an ExpressCard slot for future

expansion. For software configuration, please see the Motorola RF Switch System Reference available from the Motorola website.

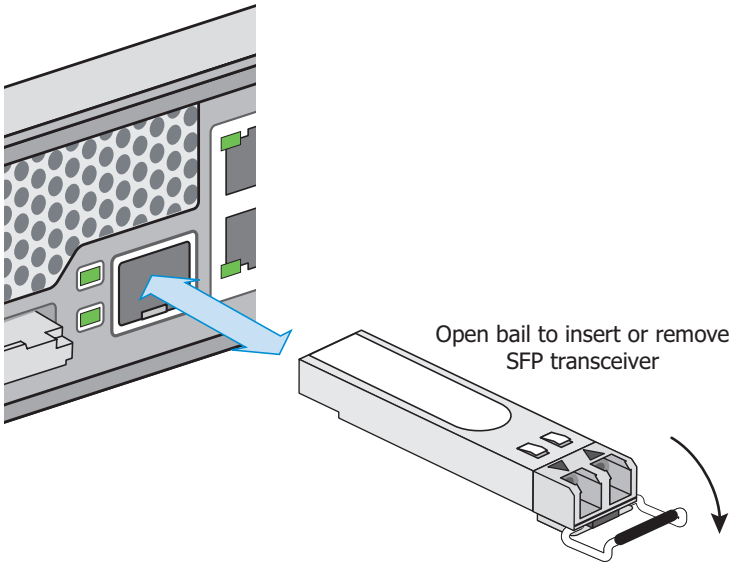
4.2 Gigabit Ethernet on the RFS6010 RF Switch



The RFS6010 RF Switch has nine RJ-45 Gigabit Ethernet ports and one Gigabit SFP (fiber optic) port. Using the RJ-45 ports requires connecting a Category-6 Ethernet cable to the port. Each of the eight ports support Power-over-Ethernet. To use the Gigabit SFP port, first install the SFP Module (Motorola Part Number: *Fiber-3000-1S-WWR).*

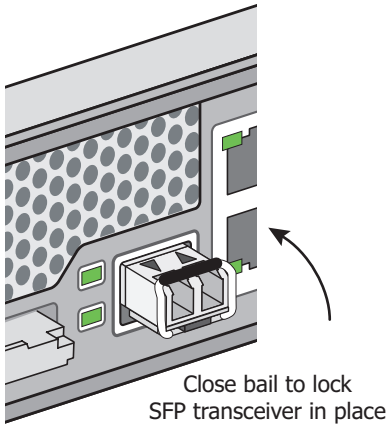
4.2.1 Installing the Gigabit Ethernet SFP

1. Open the bail on the transceiver.

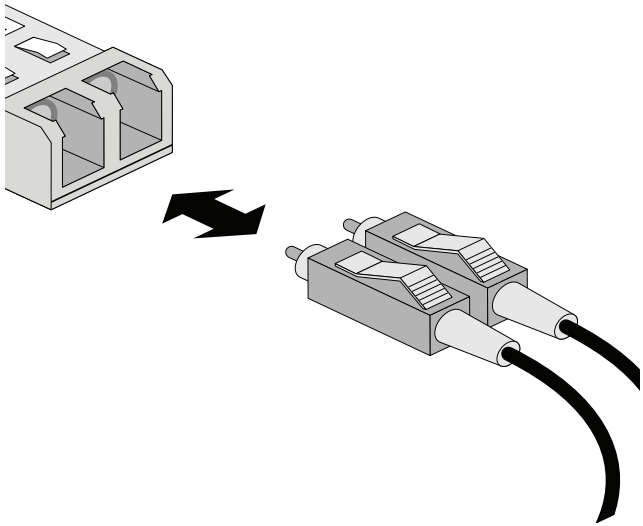


2. Insert the SFP transceiver into the corresponding port on the switch.

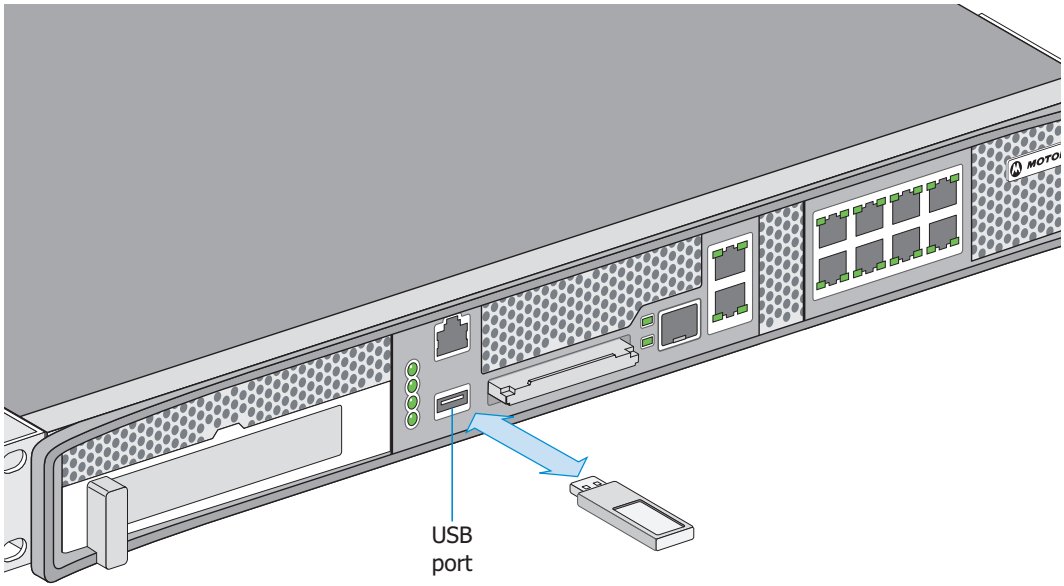
3. Once the SFP transceiver is properly seated in the port, close the bail to lock the transceiver in place.



4. Insert the fiber optic cables into the installed transceiver.



4.3 Connecting USB Devices

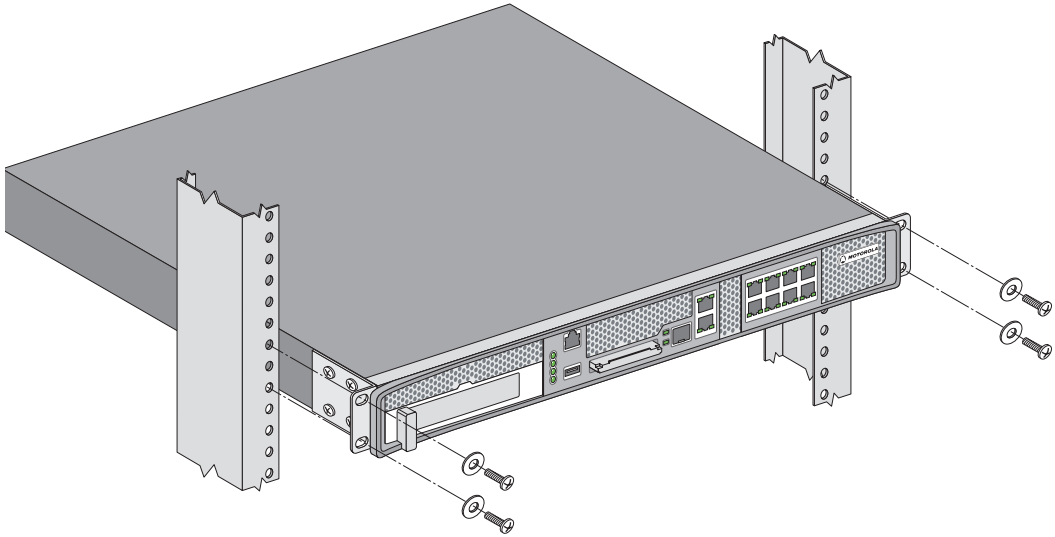


The RFS6010 RF Switch contains one USB port for connecting USB flash storage devices to the switch. The switch can use the USB flash storage device for file and log transfers. Follow the setup instructions below to connect the devices to the switch and then access those devices through the Web UI or Command Line Interface.

1. Connect the USB flash drive to the USB .
2. Wait a few seconds for the drive to be recognized by the switch.
3. Follow the instructions in the Motorola RF Switch System Reference or CLI Reference for more information on accessing USB storage devices from the switch for file transfers or firmware updates.

NOTE The switch supports USB flash devices formatted with FAT or VFAT (FAT32) filesystems only. If your flash storage device is formatted with another filesystem you will need to format

4.4 Rack Mount Instructions



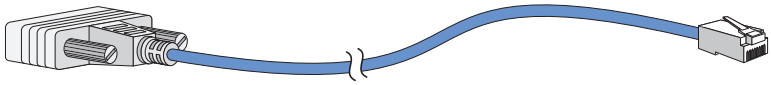
To install the RFS6000 Series RF Switch in a rack:

1. The rack mounting brackets are installed at the factory. No additional steps are needed.
2. Attach the brackets to the rack using screws appropriate for your rack's mounting holes.

4.5 RFS6000 Series RF Switch Console Port Setup

To add the RFS6000 Series RF Switch to the network and prepare it for initial configuration:

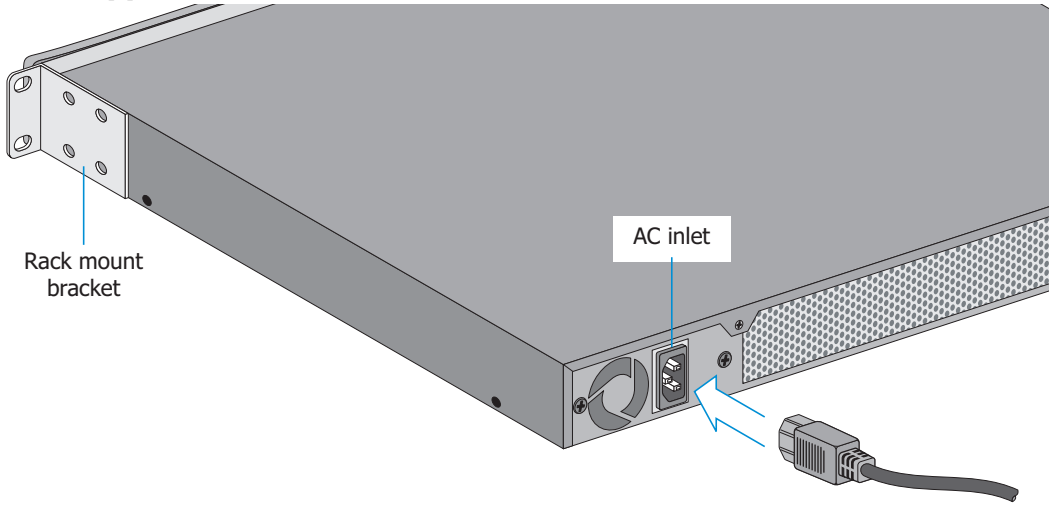
1. Using the supplied console cable (pictured below), connect the RFS6000 Series RF Switch serial port to an RS-232 (DB-9) serial port on a separate computer (the "configuration computer").



2. On the configuration computer, configure a terminal emulation application (such as **HyperTerminal**) as follows:

Terminal Type	VT-100
Port	COM port
Terminal Settings	19200bps transfer rate 8 data bits no parity 1 stop bit no flow control no hardware compression

4.6 Supplying Power to the RFS6000 Series RF Switch



1. Plug an approved AC power cord into the power connector at the back of the RFS6000 Series RF Switch.
2. Plug the cord into a standard AC outlet with a voltage range of 100 to 240 VAC.

WARNING! An improper shutdown can render the RFS6000 Series RF Switch inoperable such that it could require service by Motorola Support. Do not remove AC power without first following the shutdown procedure. An abrupt loss of power can corrupt the information stored on the device.

4.7 Verifying the Installation

View the LEDs on the front panel of the RFS6010 RF Switch to ensure the device is functioning properly. The normal LED pattern follows this path:

- During the Power On Self Test (POST), the System 1 and System 2 LEDs both blink green.
- If the POST test fails, the System 1 LED will blink amber. If the POST test succeeds, the System 1 LED will be lit solid green.
- As the software is initialized, the System 2 LED will blink green.
- After the software has finished initializing, the System 1 LED will be lit solid green and the bottom System 2 LED will be off. The RFS6000 Series RF Switch is ready to be configured, as described in the Motorola RF Switch System Reference.

Other LED codes indicate the presence (or absence) of different standby states, or errors. A guide to the RFS6000 Series RF Switch LEDs codes is provided in *LED Codes*.

5 Regulatory Information

This regulatory section applies to the RFS-6010. For more information refer to section 6, Part Numbers, Support, and Sales.

All Motorola devices are designed to be compliant with rules and regulations in locations they are sold and will be labeled as required.

Any changes or modifications to Motorola equipment, not expressly approved by Motorola, could void the user's authority to operate the equipment.

Country Selection
Select only the country in which you are using the device. Any other selection will make the operation of this device illegal.

Laser Devices - Gigabit Ethernet SFP Option
Complies with 21CFR1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated July 26, 2001.

EN60825-1:1994+ A1:2002 +A2:2001

IEC60825-1:1993+A1:1997+A2:2001

The laser classification is marked on the device.

Class 1 Laser devices are not considered to be hazardous when used for their intended purpose. The following statement is required to comply with US and international regulations:

Radio Frequency Interference Requirements - FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Radio Frequency Interference Requirements - Canada

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada..

CE Marking and European Economic Area (EEA)

CAUTION This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Statement of Compliance

Motorola hereby declares that this device is in compliance with all the applicable Directives, 2004/108/EC, 2006/95/EC. A Declaration of Conformity may be obtained from *http://www2.symbol.com/doc/*

Japan (VCCI) - Voluntary Control Council for Interference Class A ITE

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.

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Latviešu: ES klientiem: visi produkti pēc to kalpošanas mūža beigām ir jānogādā atpakaļ Symbol otrreizējai pārstrādei. Lai iegūtu informāciju par produktu nogādāšanu Symbol, lūdzu, skatiet: http://www.symbol.com/environmental_compliance.

Lietuvių: ES vartotojams: visi gaminiai, pasibaigus jų eksploatacijos laikui, turi būti grąžinti utilizuoti į kompaniją „Symbol". Daugiau informacijos, kaip grąžinti gaminį, rasite: http://www.symbol.com/environmental_compliance.

Magyar: Az EU-ban vásárlóknak: Minden tönkrement terméket a Symbol vállalathoz kell eljuttatni újrahasznosítás céljából. A termék visszajuttatásának módjával kapcsolatos tudnivalókért látogasson el a http://www.symbol.com/environmental_compliance weboldalra.

Malti: Għal klijenti fl-UE: il-prodotti kollha li jkunu waslu fl-aħħar tal-ħajja ta' l-użu tagħhom, iridu jiġu rritornati għand Symbol għar-riċiklaġġ. Għal aktar tagħrif dwar kif għandek tirritorna l-prodott, jekk jogħġbok żur: http://www.symbol.com/environmental_compliance.

Nederlands: Voor klanten in de EU: alle producten dienen aan het einde van hun levensduur naar Symbol te worden teruggezonden voor recycling. Raadpleeg http://www.symbol.com/environmental_compliance voor meer informatie over het terugzenden van producten.

Polski: Klienci z obszaru Unii Europejskiej: Produkty wycofane z eksploatacji należy zwrócić do firmy Symbol w celu ich utylizacji. Informacje na temat zwrotu produktów znajdują się na stronie internetowej http://www.symbol.com/environmental_compliance.

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Slovenščina: Pre zákazníkov z krajín EU: Všetky výrobky musia byť po uplynutí doby ich životnosti vrátené spoločnosti Symbol na recykláciu. Bližšie informácie o vrátení výrobkov nájdete na: http://www.symbol.com/environmental_compliance.

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6 Part Numbers, Support, and Sales

Part Numbers

Description	Part Number
RFS6010 WITH ZERO PORTS	RFS-6010-100R0-WR
RFS6010 WITH 8 PORTS	RFS-6010-10010-WR
RFS6010 WITH 24 PORTS	RFS-6010-10030-WR
RFS6010 WITH 48 PORTS	RFS-6010-10060-WR
8 PORT-RFS6000 SERIES UPGRADE CERTIFICATE	RFS-6010-UC-08-WR

Motorola's Enterprise Mobility Support Center

If you have a problem with your equipment, contact Enterprise Mobility support for your region. Contact information is available by visiting *http://www.motorola.com/customersupport* and after selecting your region, click on the appropriate link under Support for Business

When contacting Enterprise Mobility support, please provide the following information:

- Serial number of the unit
- Model number or product name
- Software type and version number

Motorola responds to calls by email, telephone or fax within the time limits set forth in support agreements. If you purchased your Enterprise Mobility business product from a Motorola business partner, contact that business partner for support.

Customer Support Website

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